

CLAIMS

1. An implant for treating biological tissue comprising:
therapeutic material associated with a scaffold structure that is
implantable within tissue.
2. A tissue implant as defined in claim 1 wherein the scaffold further
comprises an interior defining a chamber and at least one opening to the
interior, wherein the therapeutic material is associated with the interior of
the scaffold.
3. A tissue implant as defined in claim 1 wherein the scaffold defines an
exterior surface and the therapeutic material is associated with the
exterior surface.
4. A tissue implant as defined in claim 1 wherein the scaffold structure is
porous and a therapeutic material is associated within the pores of the
structure.
5. A tissue implant as defined in claim 1 wherein the therapeutic material
defines a plurality of cells.
6. A tissue implant as defined in claim 1 wherein the therapeutic material
defines tissue.
7. A tissue implant as defined in claim 1 wherein the therapeutic material
comprises precursor cells.

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8. A tissue implant as defined in claim 1 wherein the therapeutic material comprises stem cells.

5 9. A tissue implant as defined in claim 1 wherein the therapeutic material comprises a cardiomyocyte.

10. A tissue implant as defined in claim 1 wherein the therapeutic material comprises DNA.

10 11. A tissue implant as defined in claim 1 wherein the therapeutic material comprises skeletal myoblasts.

15 12. A tissue implant as defined in claim 1 wherein the therapeutic material is joined to the scaffold structure by surgical adhesive.

13. A tissue implant as defined in claim 1 wherein the therapeutic material is applied as a coating to the scaffold structure.

20 14. A tissue implant as defined in claim 12 wherein the coating is adhered to the scaffold structure by opposite electrical charges.

25 15. A tissue implant as defined in claim 1 wherein the therapeutic material is maintained in a gel form that is associated with the scaffold.

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16. A tissue implant as defined in claim 1 wherein the therapeutic material is suspended in a liquid that is applied to the scaffold after it has been implanted in tissue.
- 5 17. A tissue implant as defined in claim 1 wherein the scaffold further comprises a coil body.
18. A tissue implant device as defined in claim 1 wherein the scaffold further comprises a mesh tube
- 10 19. A tissue implant as defined in claim 1 wherein the scaffold structure further comprises a porous pellet.
20. A tissue implant as defined in claim 1 wherein the scaffold structure comprises a surgical grade stainless steel.
- 15 21. A tissue implant as defined in claim 1 wherein the scaffold structure comprises a nickel titanium alloy.
- 20 22. A tissue implant as defined in claim 1 wherein the scaffold structure comprises a biodegradable polymer.
23. A myocardial implant comprising:
an angiogenic implant device having associated with it a therapeutic
25 material configured to improve cardiac muscle function.
24. A method of treating dysfunctional muscle tissue comprising:

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5 providing therapeutic material configured to improve muscular function;
providing a angiogenic implant;
associating the therapeutic material with the angiogenic implant; and
implanting the angiogenic implant and therapeutic material in
combination in dysfunctional tissue

25. A method of treating dysfunctional muscle tissue as defined in claim 24
wherein the muscle tissue is myocardial tissue of the heart.

10 26. A method of treating dysfunctional muscle tissue as defined in claim 25
wherein the heart is accessed surgically and the implant is delivered
through the epicardium of the heart.

15 27. A method of treating dysfunctional muscle tissue as defined in claim 25
wherein the heart is accessed percutaneously and the implant is
delivered through the endocardium of the heart.

20 28 A method for treating dysfunctional muscle tissue comprising:
providing therapeutic material configured to improve muscular function;
providing an angiogenic implant;
placing the implant in dysfunctional tissue; and
associating the therapeutic material with the angiogenic implant that has
been placed in the tissue.

25 29. A method of treating dysfunctional muscle tissue as defined in claim 28
wherein the tissue is myocardial tissue of the heart.

30. A method of treating dysfunctional muscle tissue as defined in claim 29 wherein the heart is accessed surgically and the implant is delivered through the epicardium of the heart.
- 5 31. A method of treating dysfunctional muscle tissue as defined in claim 29 wherein the heart is accessed percutaneously and the implant is delivered through the endocardium of the heart.
- 10 32. A method of sustaining transplanted cells and host tissue comprising:
placing a mechanical implant at the transplant site to promote localized angiogenesis in the tissue to supply blood to the cells.
- 15 33. A method of treating a tumor comprising:
providing a scaffold structure;
providing an inhibitor material configured to inhibit tumor growth; and
implanting the scaffold and the biological material in the tumor.